

AVIATION

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The Famous Night Photograph of Rochester, N. Y. (See page 53)

VOLUME
XX

SPECIAL FEATURES

NUMBER
2

McCOOK FIELD REVIEW
THE MODOCKO—CY CALDWELL
THE SHENANDOAH COURT FINDINGS

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The Shenandoah Court Findings

THE CONFUSED opinions held by the public regarding the causes of the Shenandoah disaster will not be cleared by the report made by the Court of Inquiry to investigate the loss of the stricken Shenandoah. It will only serve to make the reaching of any final and unanimous conclusion more difficult. This view does not in any way reflect on the apparent effort of the Court to reach such a definite decision, for none of the findings are so loosely designed by the Navy that they indicate that the Court would have followed any course no matter how detrimental to the reputations of important officers.

After the earliest, Aquinas urged that aircraft be taken out of politics. It is interesting to note that the Court makes a similar recommendation. After stating that there were 248 reports for the Shenandoah to fly over sites in the Middle West and that the Navy had "threatened the commanding officer of the Shenandoah to submit an itinerary for a mid-west flight to pass over so many of certain specified sites as practicable on dates in the early part of September when state and county fairs were scheduled to be held," the Court makes the following sweeping recommendation:

"While recognizing the propriety and necessity of the largely restricted activities in the Naval service being the sole judges of the sufficiency of the reasons advancing all orders to naval craft, and further recognizing that the position of advancing the movement of naval vessels for the purpose of complying with public requests is in accord with long established custom, it is considered that such movements should be limited to essentially naval and military operations as far as possible, especially in the case of new and experimental types."

While this recommendation is directed to future exhibitions of naval craft, it carries with it an implied rebuke that should not be overlooked or forgotten. The findings admit that deterioration of structural material was not a direct or indirect cause of the loss of the ship. It does, however, state that some of the changes that were made in the design of the ship may have had an influence on the breaking up of the Shenandoah. The changes, resulting in a reduction of the number of gun tubes was "undoubtedly," it is asserted without reservation. It advises a development of parachute that may be worn on airplanes without increasing the weight of the crew, once again rebuking a criticism of an aviation officer that is a criticism.

While the findings as a whole indicate a most impartial and searching investigation, it is difficult to read it without finding the impression that had the wording of the report been left to a tribunal of men not in the Navy, there would have been a greater freedom of expression, and none of the report would have been couched in such explanatory language. The impression is given that there was really no one to blame, but that the whole responsibility was on the weather. Perhaps this is the best way to leave the matter. As the Court says "whether the ship if entirely to-

tard and undamaged, would have looked under the terms existing, or whether greater minor damage due to sea power was a determining factor in the final breakup, an action which this court is unable definitely to determine." The court case therefore will never be determined officially and the greatest of all ship-disaster will go down into history as another of the stricken vessels that had no unknown cause.

The Sphere of the Three Engine Airplane

THE TECHNICAL advances which have been made in the design of three engine airplanes are bringing down the possibilities of the three engine airplane for commercial as well as private use. The modernizing of transport by airplanes means, for all practical purposes, from forced landings resulting from engine failure is almost assured. As this is the cause of the great majority of attempted cross-country flights, its importance in the development of air transportation, should not be overlooked.

At the present state of development, the weight per horse power of an engine does not actually vary in proportion with the power. That is to say, present day low powered engines weigh per horse power, more than the larger engines. The effect of this upon modern design will be that a plane carrying a given power, if it is to incorporate the three engine principle, will have a relative amount of pay load carrying capacity than a similar single engine plane of equal horse power, though this deficiency will probably not be very great. On the other hand, the almost complete freedom from forced landings will be a very important aid to air transport and, in fact, to all forms of aerial service.

The problem calls for very careful consideration and will probably require different solutions according to the nature of the naval services to be performed. The lower cost, cheaper maintenance and, possibly, superior aerodynamic performance, even if only to a slight degree, of the single engine design, will naturally continue to make this type the most used.

On the other hand, however, it would seem unlikely that any regular air passenger transportation service would ever be a success where there was even the smallest possibility of a forced landing. Passengers will continue to be nervous in adapting air travel while there is any chance of their journey being interrupted and not carried out to its end.

It seems safe to predict, therefore, that the three engine airplane will be an absolute necessity to the successful operation of a passenger carrying air transport project. In such a case a passenger airplane will be equipped with three engines together with the required maximum horse power necessary for taking off and climbing, or in making landings against the lightest headwinds which might be met with. Under normal conditions the plane could be flown on two-thirds of three-quarters throttle for all engines, just as in a single engine plane, but in the event of failure of any one engine, the power of the other two at full throttle will be sufficient to maintain level flight until a destination is reached.

R. L. LAWRENCE

EDITOR

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ASST. MANAGER

VACUITY E. CLARK

EDWARD P. WARDER

RALPH H. URSIN

The Modocko

a la Gilbert and Sullivan

Adapted by CY CALDWELL

A Musical Extravaganza in Two Acts

Dramatic Personae

THE MODOCKO, *descent ruler of the air*
 AVEY-AYKHA, *his daughter, in love with Bill-Mitch*
 RAY-BLANK, *a flying mechanic, in love with Avey-Aykha*
 RAY-POO-PAN, *Lord High Quartermaster, Juggler of the Wind*
 KID-KIN, *Lord High Excavator and Judge of the Court*
 WILLY-BART, *Secretary of the Government, in love with Avey-Aykha*
 PEARL-TRENT, *Secretary of Defense, slightly in love with Avey-Aykha*

PROLOGUE, *an elderly gentleman is charge of Anti-aircraft battery. Chorus of pilots, mechanics, generally, admirals, reporters, and some of us in a corner, the American Public.*

Act I. A flying field at Titipo.

Act II. A courtroom at White-Washington

Act I

SCENE: Flying field at Titipo. Old WW in foreground. Enter: Chorus of pilots and mechanics, singing very dejectedly. We are prisoners of the air, We'd stand a sorry lot here. We've covered with grease and paint; Our struts's queer and queer— You're wrong if you think it isn't. We believe we are wanted by strings Like a commonplace motorist. We don't understand these things— It's the department to fix.

Enter: Bill-Mitch, with my engine on wheels, singing. A wind-river whistled I, a thing of clouds and patches, Bumples, bumps and crumles, Am my destiny halcyon. My bellows' long done! story passion rampant, And to my master changing, I take my way song. Enter: Pook-Bok, accompanied by anti-aircraft battery.

POOK-BOK: Our great Modocko, extreme man, When he to rule the air began, Resolved to try a plan. Whimsy young man might best be strided So he devised a such machine. That all who dared, loved, or visited, (Unless combed by luck) Should forthwith be beheaded, be-headed, be-headed.

CHORUS, by anti-aircraft battery: And you are right, And we are right, And all is right, in right you bet! Although we never let it, And you-ally run it.

POOK-BOK: This story device, you'll understand, Command great danger throughout the land! For young and old, and shy and bold, Were equally affected. The youth who wished a roving eye, He brooded as with common sight, Was thereupon condemned to die. He usually objected, objected, objected.

CHORUS, by anti-aircraft battery: And you are right, and we are right, And everything is quite all right. No one has objected. Enter: Avey-Aykha. Bill-Mitch looks at her, is sympathetically attracted and bowed respectfully from her. PROLOGUE: Young man, desperate, therefore go to, Avey the fair you must not woo. It will not do, I'm sorry for you. I'm really quite dejected, dejected, dejected.

CHORUS, by anti-aircraft battery: And you are right, and we are right, And everything is quite all right, No need to be dejected. It was to be expected, expected, expected.

CHORUS, by entire company: On a tree by a river an old pilot sat, Singing, "politics, politics, politics!" And we said to him, pilot, oh, why do you sit, Singing, "politics, politics, politics!" "Is it something of an old pilot's habit," we cried, "To sing such song unless you've taken notice?" With a shake of his poor gray head, he replied, "Politics, politics, politics!"

He clapped as he chided as he sat on the bench, Singing "Politics, politics, politics!" And a quiet proposition he made to his knee, "Oh, politics, politics, politics!" He sobbed and he sighed and a groan he gave, Then threw himself into the billowy wave, And as he rose above the water's glass, "Oh, politics, politics, politics!"

Act II

SCENE: The court-room at White-Washington. Lord High Excavator and Judge, all generals and admirals. WILLY-BART, Pook-Bok, Pook-Bok, with reporters and citizens are seated in court-room, a distinguished old man, Army and Navy. They are ordered at rest, with elephant and donkey, representing his great power on the land. Bill-Mitch is brought in, severely bound, followed by the Lord High Quartermaster and Pook-Bok with a crash full of enemies.

KID-KIN: At some day it must happen that a victim must be found, I've got a little list. Of twenty's students who might well be underground, And who never would be missed, who never would be missed. There's the presidential candidate who say the very's wet, That prohibition is a force and ain't successful yet. Investigating boards that ask in question that evidence, Who pay around and find out things and pro-ally's common.

They'd none of 'em be missed; I've put them on my list. CHORUS, by Judge: He's got 'em on the list; They'll none of 'em be missed. KID-KIN: There are honorable pilots who have obtained our places are old, And that when we bought them new ones, we were pro-ally sold. We've got them on the list! And the guy with new airplane; Who speaks 'em out to hold. He never would be missed; He never would be missed. And the pilot who grows in enthusiastic love, All aviation service but him one of our own.

CHORUS, by Judge: Oh, put them on the list. They'll none of 'em be missed All entries in the paper. Who put them on the list? All faulty wires, come now, And claims of private life. They'd none of 'em be missed. We know they'd not be missed.

Reporters are nothing but. Telegraphers are sending reports of Judge's speech all over the country. The donkey and the elephant and the goat and the mule, raise an uproar of rebellion. Airplane is forced to crash, landing gear and bomb apart it, and it fell apart.

RAIL-MITCH:

With aspect stern and gloomy stride, I've come to learn how you decide. Don't hesitate to state my tale, Oh, do I say, or get the tale?

PROLOGUE ANTHEM:

I loved one day a gentleman's maid, That creature who was out in the, Can hardly find the first steel And so we dash, Without much pain. If this is true, It's only just you. Your courage serves, To bid us adieu.

WILLY-BART, Secretary of the Navy:

Then Bill-Mitch must yield to me. Avey-Aykha he must surrender. Now I adore that girl with passion tender. And could not quit her with a steady will, Or her child, if I did not, Adore myself with passion tender still.

CHORUS, by reporters:

As you, he loves himself With passion tender still. With the news to date and set, And send the Editor the bill.

WILLY-BART:

I cannot wait, I cannot wait, I cannot ever see a hint.

CHORUS, by Judge:

No wonder you are ruler of the whole Navy— So let us then your suit advance. With laughing song and merry dance. With poems sweet and rhyme chosen, Congratulations your life career.

PEARL-TRENT, Secretary of Defense:

With Army-Aykha I have played;

Who thinks that I can make the grade? You should not see me parade. With anti-aircraft plane all laid.

PROLOGUE ANTHEM:

The Bill-Mitch has yielded at Army, Relieved of Willy-Bart of the Navy, Has moved a looking and and sure, Inside of Secretary House.

KE-KO (addressing Willy-Bart and Pook-Bok):

There is beauty in extreme old age, The you honey you are clearly enough! Information, I'm requesting, On a subject interesting. Will Avey-Aykha love you 'cause you're tough?

WILLY-BART and PEARL-TRENT, Duet:

Throughout this wide domain, It's the pro-ally opinion, That we'll treat her very tender if we're tough.

KE-KO:

There's a fascination (possibly) In two men to romance. Do you think you are sufficiently deposed?

WILLY-BART and PEARL-TRENT:

To the matter that you mention, We have given some attention. We are sure we are sufficiently deposed.

KE-KO:

Then decide which of you takes her. I'll attend to this young fellow (turning to Bill-Mitch) You will sit in solemn silence in a dull, dark dock, In a presidential prison with a life long lock, Availing the invention of a short sharp shock. From a cheap and shabby shopper on a big black block.

CHORUS, by entire company:

From now Bill-Mitch will be dumb, dumb, dumb, Your paper please busy, for all will be merry. I think he had better swallow, catch words, And give out exposures of girls. His cotons, thank turns, Are not worth a penny. The word for the predicate is more, more, more, As I think you will gladly learn.

Curtain



The "Chasler" cabin passenger plane used on the Los Angeles San Diego airline operated by the Ryan Flying Company

Aviation Lighting

A General Discussion of the Air Mail Lighting Systems Now in Use for Night Flying

By H. C. RITCHIE

Aircraft Lighting Specialist, General Electric Co.

AT AN AIR MAIL field a few days ago, the Assistant Manager said to me, "I've probably been your ideas as to how airports and fields should be lighted for night flying. Why don't you ask the pilots?" We have fourteen here and I will summarize their different opinions from those as to the land method." This being overheard by several of the aforementioned pilots, a discussion started which adjourned to the back room and there, for a few hours, I very attentively and quietly listened to arguments that proved to me that the Assistant Manager was wrong; he should have consulted at least fifteen airplanes from those fourteen pilots.

Nevertheless, it is a fact that these same pilots nightly fly over the air mail route which is marked by rotating beacons, and into fields which are marked by boundary lights and illuminated by floodlights of various power and design. The present system of lighting has been developed by interested engineers over a period of years and, while it is true that the pilot has not always been satisfied with the results, at least he has been very successful in carrying on.

Airway Lighting

A description of the lighting system now in use by the air mail, should properly be devoted to these parts: Airways, Airports and Airfields.

The route between New York and Chicago has 30 emergency fields, at each of which is located a 50 ft. rotating beacon, using a 500 to 1000 watt incandescent lamp, the beacon being mounted on 30 ft. steel towers. These rotating beacons show the location of the emergency fields and are also used at intermediate points to indicate the route. Power is obtained

from either the local power company or a generator driven by a gasoline engine located in a small house in the path of the beacon tower. At intermediate points along the route, where local power is available, starter houses are located, consisting of four automobile headlights revolving at approximately 30 r.p.m. In addition, it has been found advisable to install flashing gas beacons in mountain passes where a narrow path must be followed for a short distance.

Airport Lighting

At terminals and air-terminal fields, the outline of the landing space is marked with 48 super-intensity boundary lights, operated from a constant current transformer on a motor circuit. These are spaced approximately 300 ft. apart and give to the pilot flying at night a picture of the field. Green lights are placed at points where desirable approach may be had. All obstructions, such as pole lines, water towers, trees, etc., are marked with red lights, specially wired into the airport boundary circuit.

The Air Mail Service light the landing space at the terminal fields by a large floodlight which consists of a 150 degree Fresnel lens 3 ft. 6 in. in diameter and 4 ft. 8 in. high. The light source is a General Electric 150 wattive arc, the mechanism being the same as that used in modern picture studios. The floodlight focuses over the field a very clear bluish light of an intensity well above the minimum requirements for landing.

A Smaller Floodlight

A less expensive unit has been developed for the same purpose, in this case consisting of a small Fresnel lens, approximately 6 in. in diameter and 6 ft. in high, with a 500 to 1000 watt

incandescent lamp and a spherical mirror placed back of the lamp to reflect light which would otherwise be lost. These units are mounted on pipe supports, about 300 to 400 ft. apart, on two sides of the field and, in this way, give more uniform illumination than is obtainable with one light unit.

Advantages of Small Units

The other advantages of the smaller unit are: (1) the factor of reliability is greatly increased, with the larger units, in the event of one light, would not materially affect the illumination; (2) in foggy weather the smaller units have the ad-



Typical light in use on the night Air Mail route

vantage of providing illumination near the borders of the field without the great diffusion from one large unit which may produce a glare and not sufficient illumination on the ground; and (3) the smaller unit gives a better idea of the corners of the field, than does the larger unit, which, from the air, compares the approach distance.

Airplane Lighting

All the airplanes of the Air Mail Service used on the divisions which fly by night, are provided with two wing tip lighting lights. These are small searchlights operated from a storage battery on the plane and properly aimed, to indicate wind direction. Red, green, and white navigation lights are also provided.

Lighting requirements, of course, will differ with location, amount of traffic and with new ideas and suggestions of the pilots and aeronautical engineers. However, for the present, the fact that the air mail is rapidly expanding its service with the equipment described above, would indicate that this method of lighting is quite successful.

Removal of Rust Preventive Coatings

AVIATION was recently requested to furnish any available information regarding a solution which would remove from airplane engines, and generator casings, which had been applied by the Air Service on surplus engines placed in storage and later sold to dealers.

An inquiry addressed to the Information Section of the Army Air Service has elicited the following information which will doubtless prove of interest to airplane engine dealers.

"The Power Plant Section of the Engineering Division has used a solvent consisting of kerosene, turpentine and benzene, in the treatment of surplus engines, which had been discarded, with very good success. The solution has been found to dissolve, without much difficulty, all the rust preventive coatings encountered at the Engineering Division."

A Matter of Right and Left Hand Throttles

To THE EDITOR OF AVIATION:

A great many of the present day light commercial airplanes are equipped with dual engine light and heavy planes. From the Army aviator's point of view is entirely wrong.

It seems that from early aviation history the throttle was placed on the right side with the idea in mind that the pilot must use his right hand to operate a throttle key in any training, therefore making it necessary to fly with his left hand. That, however, was altered, it being later realized that an aircraft pilot had no observer to do the signaling and otherwise's points from were not required in telegraph.

Nearly 90 per cent of all people are naturally right-handed—that is, they are more dexter and quicker with their right hand than their left hand. Of course, by moving use of the right hand strength and skill are developed. What does it do to the sense of subjecting the weak, untrained left arm to work with the natural side, which, at times, especially in most cases, is very difficult to handle. And why use the right hand developed and strong arm to operate the throttle, which does not require any muscular effort and very little dexterity.

Although the writer has trained himself to fly with either arm, other pilots, may at sometime, find it necessary to pilot an airplane with the throttle placed on the opposite side to which he is accustomed and find it very perplexing. It may even result in a serious accident. It is simple enough, while flying in a line, to control the plane with the untrained hand, but place a pilot in to land in a tight place with that arm. He can fly cross-country, which a great many do. But no maximum efficiency, safety and ease of control be obtained in this fashion.

The fact that all modern Army aircraft, and those that are not so modern, have left hand throttle ought to be sufficient proof that this arrangement is preferable.

It is suggested that manufacturers of the light commercial airplanes give the matter their earnest consideration, and suggest that they confine with the possible of so placing the throttle that the majority may use their naturally developed right arm. It is felt that there be easier to change the law per cent than the thirty per cent.

ROBERT E. PIERCE

A Notable Light Plane Flight

One of the most interesting light airplane flights was made on Dec. 25 from London to Dublin by Colonel the Master of Sempill, a director of the International All Star Airways Syndicate, in a tiny de Havilland light twin. The flying time was 58 1/2 hrs. with one halt. The pilot, an Englishman, strong build, weighed, a 70 lb. experience weighing.

The machine, a will be described is equipped with a 50 hp. Cessna engine, in many respects resembles an airplane, but is extremely simple. It can be started from the pilot's seat. It is generally claimed for this plane, which at a maximum speed of 90 m.p.h., that the operating expenses are less than those of a high powered aircraft.

Skywriters Have Florida Contract

The American Tobacco Company has placed, with the Skywriters Corp. of America, a contract for advertising Lucky Strike cigarettes throughout the state of Florida during January and February. It will be recalled that commercial skywriting was introduced in the United States two years ago, with a Lucky Strike advertising campaign, which was continued for a year and covered important centers throughout the country.

Night Air Service Planned

An airplane freight express service between London and Paris by night, will be instituted Jan. 15, on the line of the Imperial Airways Limited. In the freight service, which will, at a night passenger service will be added. The London-Paris route is now discontinued at 50 different points, by special ground lights and flashing beacons.



The Air Mail Field at Omaha, Neb., illuminated for night flying

The Location of Terminal Landing Fields

By CHARLES M.H. POND

With the continued increase in the use of air transportation, many questions relating to the most advantageous location for the airports, which are constantly increasing in size and extent of large cities, become of considerable importance. While it is generally held that the answer to the question of the location of any airport, the more centrally it is located to the business community of that city, the more it is located in making the flying field, the better the answer, which appears to be the theoretically opposite direction, rather some interesting points.—E.H.

AS COMMERCIAL airlines continue to break out in all directions, bringing up the major industrial centers and the new cities of the entire country, questions as to the best places to build follow in manufacturing centers and terminal facilities become prominent. There are a great many questions that must be considered, not divided in order to lay down a comprehensive plan, with a view to commercial operation. The question as to the site of airports, their location with regard to land value and available future developments, and also the local atmospheric conditions, must be considered.

How far should an airport be from the city and the center of population it serves? The popular idea is that the airport should be as far from the city as possible, and that the center of the town should be as far from the airport as possible.

Suppose there are two cities, where, for the sake of argument, are 1000 miles apart. Suppose it is proposed to develop business as close as is possible and that there are two cities by air. An airplane site is shown which is, for example, 2000 ft. by 3000 ft. and located in a rapidly growing district, 30 minutes from town by car.

On account of the small dimensions of the field and the business district in the vicinity, the airplane must be capable of getting out with a very steep gradient of climb. Assuming that after clearing the field, the speed is 50 m.p.h. and the engine has a 1000 h.p. and that the fuel consumption is 300 lb. p. h. at this speed, the time required to rise the

1000
1000 miles, according to the slope of the field, is —

12.5 hr. Adding one hour for time lost between the engine and the point of take-off, the total time is 13.5 hr. Then, the weight of the fuel consumed is 12.5 x 300 = 3750 lb.

The engine revolutions are 1000 x — = 1000 per mile

The site we have just considered represents, it should be remembered, a very large capital investment, depending on how close it is situated. For the same charge it would be possible to arrange a line of land, twenty miles out of town, ten times the size, or 3000 ft. by 3000 ft. in dimensions. An airport of this extent will permit us to operate a class of airplanes having very different characteristics as regards to gradient of climb and speed.

Assuming the land to be transported in the same manner, the same engine and assuming them at 1000 m.p.h., the time required to rise the same as previously, the problem is to make up the time lost in transportation between the city and the point of take-off, the flying field.

Having a clear run of 3000 ft. ahead and probably no obstruction beyond, the thrust of the propeller, while pulling under way, is of little importance. This being the case, the design of the propeller may be such as to deliver maximum

thrust with high efficiency at the highest air speed. With wings set on low incidence, and with other refinements incorporated by means of the large section made in climbing performance, the airplane will be fast in full flight.

Suppose the speed is 315 m.p.h., with engine turning 1500

rpm. The time required to fly 1000 miles is — = 3 hr.

Then the weight of the fuel consumed will be 3 x 300 = 2700 lb., a saving of 1000 lb.

The engine revolutions will be 1400 x — = 700 per mile;

a saving of 260 turns per mile adding two hours for the time lost from the point of take-off, the total time is 5 hr. 20 min. to make to 11 hr., an actual gain of 245 hr. Such an airplane would give very low landing velocity, a characteristic that is required in many places to bring business to all points in which the airplane is the first consideration. As business is made in this project, the airplane is providing valuable port facilities in the case of landing of such vessels.

A ship owner is not so very much interested in the rate at which his ships gather freight, as he is in the engine revolutions per mile and the economical performance after clearing port. The history of marine transportation shows a constant improvement in port facilities to meet the requirements of the ships that use them. The ship designers and marine engineers have led the way, and the harbor engineers have followed.

Whether we ship merchandise by sea or by air, the principles are much the same. The problems of port and terminal facilities are similar. The ship owner and the airplane designer both facilities to accommodate the most economical ship that his marine equipment can give him. The final consideration, namely, the public, is to be provided with an economic transportation service.

It should be pointed out, that, while Mr. Pond advocates a flying field, located at some distance from the business district, as leading toward economic operation, and that the air is not to be used by the airplane, it would seem that it is somewhat lacking in the question, the need of progress should be made in the direction of the design of more efficient airplanes capable of covering the great distances of a rapid rate of climb together with a high level cruising speed, instead of accepting present limitations in design and structure the problem from the opposite end.—E.H.

Wind Pressure on Structures

In structures, such as tall buildings, chimneys, bridges, and power transmission lines, it is necessary to make provision for the stresses imposed by wind pressure. The values of wind pressure now used by engineers, are based on the results of experiments made at a time when experimental methods were in the early stages of development. The models used in the tests were, mainly, flat plates—factors rarely used for structures. There is great need for data on models resembling actual structures more closely. The Bureau of Standards completed, during the past year, an investigation of the distribution of wind pressure over a model of a tall building, with the wind striking the face of the building at various angles. The measurements were made in the 16-foot wind tunnel, on a model 3 ft. by 3 ft. by 30 ft. in size up to 70 m.p.h. The results will be published as a scientific paper of the Bureau. Measurements on a model 3 ft. by 3 ft. in diameter and 3 ft. high are also nearly completed.

France Leads World in Development of Commercial Air Transportation

According to a report received by the Transportation Division of the Department of Commerce, a recent survey of French commercial air lines for the five year period, 1920 to 1925, shows that France leads all nations in the development of commercial air transportation, although the number of companies has slightly decreased. After increasing from 32 in 1921 to 37 in 1925, the number of lines has decreased to 34 in 1926, showing a tendency to abandon unprofitable routes and concentrate on the development of the long important services with an increase in the efficiency of the companies.

This increase in the efficiency of the companies is noteworthy, as with the same number of pilots—3000 in 1920 as in 1925, and 18 line planes, the lines carried 34,729 passengers, 3,204,775 lb. of express and 1,174,551 lb. of mail and freights, 2,506,498 miles in 1925, as compared with 1,043,919 passengers, 877,369 lb. of express and 76,819 lb. of mail, flying 1,480,218 miles in 1920.

With reference to the air mail traffic, it is worthy of mention that, with one exception—the Luksemburg Company operating between France and North Africa—the mail traffic carried by the French companies, is practically negligible. The Luksemburg Company in 1924 carried 3,455,000 lbs. or 8454 per cent of the total of 3,597,364 handled by all French lines.

Probably the greatest deterrent to the more rapid development of air traffic, as in other countries, is the fear of accident and loss of confidence of the traveling public in the safety of airplanes as a means of travel. The reduction in the number of lives lost on regularly scheduled flights of French lines, from 14 in 1920 to 528,346 miles of flying in 1925 to 5,284,618 miles of flying, or an fatality in each 37,774 miles flown, as compared with one fatality in each 27,000 miles in 1920, indicates satisfactory progress in the direction of safety and reliability.

All airlines and landing fields in France are owned and maintained by the French government, the companies pay for the accommodations and services rendered. The French Government hereby subsidizes the commercial air transportation companies and it is said that they are the most completely and liberal of any in Europe. The appropriations included in the French budget of 1918 and 1920 for civil aviation, were, for the first year Jan. 1 to Dec. 31, 1918, 138,953,500 francs, and for 1920, 182,261,700 francs.

AIR TRANSPORTATION

In addition to the forwarding of mail and express and the general carrying of passengers, the Government controls the forwarding of pilots and planes and furnishes wireless and meteorological services, aids in the planning of new routes, and conducts experiments in night flying, etc.

Derailment

The Russian-German Air Line recently experienced its "biggest loss yet." A machine, constructed by the German firm, was shortly en route to transportation, on the Berlin-Moscow route. The operation at the Derailment Company may be taken as a fair example of commercial air traffic, with daily scheduled departures and arrivals, carrying passengers, freight and mail. Single engine Daimler and Daimler planes are used, but the three-engine machines will operate next year. The following are May-June statistics covering four years of operation.

Year	1920	1921	1922	1923	1924	1925
Passengers	10,000	10,000	10,000	10,000	10,000	10,000
Freight	10,000	10,000	10,000	10,000	10,000	10,000
Mail	10,000	10,000	10,000	10,000	10,000	10,000
Planes	10	10	10	10	10	10
Pilots	10	10	10	10	10	10

One of the most interesting facts in the Russian schedule record established for the last trip at over a thousand miles. The percentage of completed flights to the total number of flights undertaken was 90 per cent in 1922, 90 per cent in 1923 and 98 per cent in 1925. The May-June figures are given on the grounds that the Russian traffic is not carried on. The completed flight percentage, however, falls down to approximately 90 per cent for the entire year's traffic, in each case.

Aviation in the Locarno Treaty

It is interesting to note that, at the conclusion of the ceremony which marked the signing of the Locarno Treaty in London on Dec. 1, the question of aviation found a place in the reported proceedings. It is reported that during the afternoon following the signing of the treaty, representatives of seven European countries visited their respective governments in the adjacent room. The representatives of France, Germany, Great Britain and Belgium, and the representatives of Germany, were in secret conference to consider certain requests which Germany wished to put forward in view of the Treaty, and it is noteworthy that, while the proceedings were being in session, one of the principal German requests was for an extension of Germany's rights in the field of civil aviation.



The Daimler "Comet" aircraft of the type used by the Derailment



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The Aerobeacon Wind Tower

The "Aerobeacon" tower is shown in this photo, this station from the air. The tower is situated at Croft Field, Md., on the Potomac.

and wherever this blows at more than 6 m.p.h., the generator, mounted on top of the tower, begins charging the storage battery housed in the small hut, where the switch board is also installed. The switch board carries the switches necessary to control the various lights and, in addition, two relays, one showing the amount of electricity being generated and the other, the amount used. The application of this equipment to airports proposed is being investigated by the Aircraft Development Corporation, which company holds the agency for this aviation application.

United States Civil Service Examination

The United States Civil Service Commission announces open competitive examinations for the positions of, Junior Aeronautical Laboratory Draftsman, \$1,200; Aeronautical Laboratory Draftsman, \$1,650; Principal Aeronautical Laboratory Draftsman, \$2,200.

Receipt of applications for these positions will close February 6. The examinations are to be held in rooms under the National Advisory Committee for Aeronautics, for duty at Langley Field, Va., and in positions requiring similar qualifications.

The entrance salaries for the departmental series of Washington, D.C., are shown above. After the probationary period of six months required by the civil service act and rules, advancement in pay may be made without change in assignment to \$1,680 a year for junior aeronautical laboratory draftsman, up to \$2,910 a year for aeronautical laboratory draftsman, and up to \$3,708 a year for principal aeronautical laboratory draftsman. For the Field Service the range in salary will be approximately the same, but the entrance salary need not necessarily be at the minimum rate for the grade. Promotion from grade to grade and to higher grades may be made in accordance with the civil service rules in respective cases.

The duties of these positions involve the designing and drawing of mechanical appliances for instruments (twenty of small size, and without rapidly moving parts) and their details and in the section of the laboratory of the Research Committee.

Competitors will be rated on their education, experience, and fitness, and specimens of drawing and lettering to be filed with the application. Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D.C., or the secretary of the board of U.S. civil-service examiners at the postoffice or customhouse in any city.

The Vincent OX Plane

A very interesting little three-place airplane, designed around an OX engine, is the Vincent, built by its owner, Mr. O. Vincent of Massillon, Ohio. As will be seen from the photograph, the plane is a neat conventional design, with a well streamlined fuselage and stepped wings. Steel tubing is used very largely in the construction, the fuselage being formed of welded seamless steel tube, so is also the

complete tail section. The wings are of normal construction with an entire section and with ailerons fitted to the upper



The Vincent OX plane. In the lower center of the picture the mechanism in design is shown.

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The simplicity of the landing gear will be noticed and the
specialty type should render the plane very serviceable in
about any field. The tail sled is very simply constructed
out of spring steel. The engine is mounted in a second com-
partment with an independent radiator and a 250 gal. supply tank
in the upper wing. The model is extremely simple and the
weight added is far as possible, all tail wires going direct
to the main wing structure.

Characteristics of the Vincent OX Plane

The general characteristics are as follows, and to be as
follows:

Wing span
Overall length
Capacity of fuel tank
Tail wheel
Landing gear

20 ft. 0 in.
11 ft. 0 in.
75 gal.
50 m.p.h.
50 m.p.h.

The plane has been used extensively for passenger carrying
and Mr. Vincent has toured a considerable portion of
the northwestern part of the country in it.

Gourdou-Lesgourd Perout Plane

The two French government engineers, Gourdou and
Lesgourd, have spent over the design of several types of
airplanes since they built their first plane in 1910. Their
latest product, the GCL, is fitted with a 400 hp. Lorraine-
Dietrich engine. The general conception of the design is as
different from the American practice in general planes, that
it could be of considerable interest in this country.

The Gourdou-Lesgourd is a general airplane, the wing
being constructed as a single unit and being soldered together
in place from one rivet to another. Furthermore,
a low surface skid is set up back. The wing is skidless.



by mounting in place from, except for the absence of sharp
corners at the outer extremities of the leading edge and the
absence of any of the upper surface at the trailing edge, to
allow the pilot better vision. The wing is of the semi-ditch
type and the struts are substantial, long and of smoothly
curved shape.

The attachment of the wing to the fuselage is simple but
would seem to offer a considerable amount of torsion
resistance, even when in conjunction with a biplane. This
entire wing is supported upon four pairs of struts, two pairs
forward and two pairs aft.

Continued on page 62

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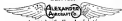
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New England News

By Peter Adams

On December 17, the State of Maine Chapter of the National Aeronautic Association, at Augusta, met in the office of Mr. W. H. Conner, Governor of the Association for the State of Maine, to commemorate the twenty-second anniversary of the first flight by the Wright Brothers. That date was also the anniversary of the formation of the State of Maine Chapter of the Association which was born more than fifty members who are doing a great deal to aid aviation locally, as well as throughout the country. At this meeting, plans were prepared for an active winter in aeronautical interest in Maine and it was announced that a show for membership for this month display would take place in the very near future.

T. M. Williams of the Colombian Flying Club, Colombian, Cal., is trying to win "Cy" away from the "Williams" crew by fast and asked to call "Cy" attention to the fact that besides having a good flying field and lots of Machines who need a Coldwell education, Colombia can boast of the best position in the State of Georgia and Williams is willing to bet that if "Cy" ever got a sample of these parishes he would have his appetite for our chicken gas. This is just to pass the word on to "Cy," but we want him here and want that next round is up to him and he proceeds at his own risk.

Last week Lt. Raymond D. Thomas, Commanding Officer of the Naval Reserve Air Station at Squam, Mass., occupied his fourth hour in the air in the space of a single year. This is believed to be a world record for one man, and was considered of such importance that one of the New York papers sent a reporter and a cameraman close up to Boston to cover the story. The flying time of Lt. Thomas by months during the year is at follows:

January	10	10	20
February	10	10	20
March	10	10	20
April	10	10	20
May	10	10	20
June	10	10	20
July	10	10	20
August	10	10	20
September	10	10	20
October	10	10	20
November	10	10	20
December	10	10	20

totaling 700 hours, 20 minutes for the year. In addition to his wonderful flying record, Lt. Thomas forced him to be active in aeronautical matters in the vicinity of Boston and has satisfied a large number of people as the flying fraternity.

Last Frederick H. Becker, formerly chief pilot for the Navy and now pilot for the Wright Aeronautical Corporation, who brought the Wright-Bellanca to Boston for the Aviation Show a few weeks ago, made an unexpected party call to Mass. last Friday. It was an unexpected party call to Boston, where he is now in the city of Boston. Becker was making altitude tests in Model Field with a new Wright-Bellanca and crashed in 1918. After completing the trial, he was down and found himself over the sea and in the distance could hardly make out land, which he did not recognize as Martha's Vineyard. He came in and made for the land, and after a few minutes the few aviation folk which were left in his, and after landing made his plane fast to a tree and spent the night at a farm house. The next morning he discovered that his plane was so badly shaken and so rotten that he could not get out of his cage, so he was taken to the doctor. Hospital at Plymouth, Mass., where it is reported that he is doing well and is expected to be released within a few days.

Staff Sergeant George E. Schmidt, who said last summer, had been released at the Boston Airport from the day of its opening, has now returned to Boston much to the delight of everyone who knows him. Sergeant Schmidt, who holds a commission in the Reserve, has been taking flying instruction at Tuscan during the summer.

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Activity is reported from the field at Weston, Mass., where Capt. E. B. Beck and his crew are getting ready for the flying activity in the spring. There is a new JN in commission and also an Oriole with fifty-five wings and a number of JNs are in storage in the hangar and are being refitted with new wing covers for next year.

Cold weather, or the fact that he is a newly married man, seems not to deter the ardent that Dan Redford, Aviation Editor of the Boston Transcript, has for flying. His new Thomas at Squam, on the very cold day when Thomas made his 700th hour in the air and again at Weston the other day with Redford's Hawk. Also Dan has kindly recently made flights together in the Travel-Air from the Boston Airport and also in the big Wright-Bellanca when it was up for the Aviation show.

We are printing these notes before Christmas but we don't expect they will be published in time as we can only get the word everybody had a very merry Christmas and that aviation in New England, as well as throughout the country, has enjoyed the largest, happiest, and most prosperous of all New Years.



Art Gould of Los Angeles flies special time. This pilot has broken a number of records for single time flying.

Notes, III

By W. S. Mader

More than \$1,000 miles of flying without a single accident is the record made by the Campbell Aeroplane company of Maine thus far this year. Pilot E. R. Campbell of Maine, manager of the company, has made the following tabulation of activities for the first eleven months of 1925:

Planes	Hours in Air	Miles
E. R. Campbell	450	35,000
G. D. Seligman	75	5,025
G. D. C. Seligman	25	2,450
Flora Wright	64	4,800
L. V. Webster	40	3,000
A. M. Elliott	22	1,750
W. H. Foshing	11	825
Homer Mader	8	675
R. T. Quahy	7	525
Harold Vogel	15	1,425
L. V. McElvaine	15	1,415

Totals 815 62,335

Passengers carried 4,352

Stations touched 18

Estimated attendance at field 156,000

Number of racing planes at field during year 24

A little risk taken up and borne by the proprietor of a visiting Sonnet was responsible for the only accident of any

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"It may interest you to know that I have just completed a two thousand mile trip from Garden City, Long Island, to Miami, Florida, across the state of Florida to Ft. Myer, and return to Detroit, in the Curtiss Lark which was delivered to us on December 5th.

"I am very enthusiastic over the performance of this plane and I believe it to be the most modern plane of its type in existence. I wish to compliment you particularly on the strength of the landing gear and the ability of the plane to get in and out of small fields. Its stability is also remarkable.

"A word also about the motor. The Wright J-4 200 HP gives the plane a cruising speed of better than 100 m.p.h. This motor had practically no attention on the trip and for over one thousand miles of the trip, ordinary automobile gas was used. We used two quarts of oil from New York City to Miami, Florida, and an average of one hundred miles to thirteen gallons of gas.

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